

10-12-06

AF \$  
SPW

PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paper Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/081,419
	Filing Date	Feb 22, 2002
	First Named Inventor	Williams, Dwight P.
	Art Unit	3752
	Examiner Name	Ganey
Total Number of Pages in This Submission	Attorney Docket Number	50051

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment / Reply	<input type="checkbox"/> Petition	<input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Reply to Missing Parts/Incomplete Application	<b>Remarks</b> It is believed that no further request for extension of time or fees are due. Notwithstanding, the Commissioner is authorized to charge any additional fees incurred or credit any overage to Deposit Account No.50-1753 ( 50051 ). Please regard this as a further request for extension of time to the extent one is needed. (Customer Account Number 22929)	
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name			
Signature			
Printed name	Sue Z. Shaper		
Date	October 11, 2006	Reg. No.	31663

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage via Express mail #EV 975504315 in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below			
Signature			
Typed or printed name	Sue Z. Shaper	Date	October 11, 2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

In you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Williams

Application No.: 10/081,419

Filed: 2/22/2002

Title: Around-the-Pump Additive System for Industrial Scale Hazards

Attorney Docket No.: 50051

Art Unit:  
3752

Examiner:  
Ganey

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

APPEAL BRIEF

**(i) Real Party in Interest**

The real party in interest is Williams Fire & Hazard Control, Inc.

**(ii) Related Appeals and Interferences**

There are no prior or pending appeals, interferences or judicial proceedings known to appellant, appellant's legal representative or an assignee which may be related to, directly affect, be directly affected by or have a bearing on the Board's decision in the pending Appeal, to applicant's best knowledge.

**(iii) Status of Claims**

Claims 1, 2, 5-9, 13 and 15-17 are pending. All pending claims are rejected. Claims 3, 4 and 10-14 are withdrawn as drawn to a non-elected species. The withdrawn claims will be allowable with an allowable generic or linking claim. All pending claims are appealed. Claims 1 and 17 are independent method claims. Claims 9 and 16 are independent apparatus claims.

**(iv) Status of Amendments**

An Amendment after Final was not entered. The Examiner asserted that the amendment "changed the scope of the claims and required further consideration." Applicant respectfully traverses. A copy of the Submission after Final and Amendment under §1.116 is attached in the evidence appendix. The submission was filed 8/18/06. Although the Examiner did not enter the amendment, the Examiner did not say that the attached evidence filed with the submission was not made of record. The Examiner's new comments in the prior Action had made the submission of the evidence advisable and helpful. Applicant assumes, thus, that this evidence is in the record.

**(v) Summary of Claimed Subject Matter**

**Background**

**Clarification of Distinction between “Standard Pumps” and “Fire Fighting Pumps.”**

One of ordinary skill in the pertinent art would understand and appreciate a distinction between “standard pumps having no 2½ inch inlet” and typical “fire fighting pumps.” To substantiate that this is a recognized distinction among those of ordinary skill in the pertinent art, applicant submitted (with the above referenced Submission and Amendment after Final under §1.116) a copy of NFPA 1901 Standard for Automotive Fire Fighting Apparatus Regulations as well as a website printout from a large “standard pump” rental agency, “Rain for Rent.” Both are attached in evidence appendix. It seemed advisable to show that a distinction between “standard pumps having no 2½ inch inlet” and “fire fighting pumps” could be substantiated among material publicly available. The Regulations and the website are both matters of public knowledge, publicly accessible records.

Firefighting pumps are constructed to meet NFPA 1901 Standard for Automotive Fire Fighting Apparatus Regulations, a copy of relevant portions of which is attached in the evidence appendix. Firefighting pumps are to include a 2½ inch, or “pony,” inlet on the suction side of the pump. (Fire fighting Regulations 1901-45, ¶ 16.6.3 and 16.6.3.1.) The Regulations require that at least one valved intake be provided that can be controlled from the operator’s position, and 2½ inch is the standard size for what is referred to in the industry as the “pony inlet.” The 2½ inch “pony” inlet is used for running an “around-the-pump” system in order to add foam concentrate to the water. The around-the-pump system diverts a small amount of water from the discharge side of the pump through a foam concentrate uptake system, such as a jet pump, and back to the suction side of the pump, hence the name “around-the-pump” system. By such means foam concentrate is introduced into the water supply.

Further, fire fighting pumps of 2000 gpm or greater have a water intake manifold typically providing for two or more 6" water lines. See Table 16.7.1 in attached Regulations 1901-45. The specification discusses the construction of fire fighting pumps on page 1 line 25 through page 2 line 8.

As applicant uses the phrase, “standard” pumps or “general purpose” pumps to refer to pumps that have a water inlet but no pony inlet, no special 2½ inch inlet.” Such standard pumps rated for at least 2000 gpm and with a water manifold inlet are commonly found at an industrial site (where there is a fire.) See specification page 2 lines 17 through 25.

To confirm the existence of “standard pumps” without a “pony inlet,” attached to the submission in the evidence appendix is a print-out from a website of “Rain for Rent,” a pump rental operator. Applicant’s attorney called the “Contact Us 800 number” of Rain for Rent, as indicated in the submission, and inquired whether any of the 34 pumps illustrated on the website provided a 2½ inch inlet

on the suction side of the pump. "Daniel," to whom applicant's attorney was referred with this question, said none of the pumps provided such a 2½ inch inlet. The pumps came with inlet manifolds but none provided a 2½ inch inlet.

The distinction between such "standard pumps" and "fire fighting pumps" is made in the specification. See spec p1 line 25 through p2 line 8.

#### Problem to be Solved

Fighting industrial fires frequently entails drafting water, typically from a reservoir, using line(s) to communicate the water to the hazard and entails assembly of a source of additive (paradigmatically foam concentrate) with a fire fighting pump in an around-the-pump take-up system. The pump must pressure the water as well as the around-the-pump additive system. See spec p1 lines 13-38.

It had been assumed that running an around-the-pump system required a specifically outfitted fire fighting pump with a pony inlet. See spec p2 line 6 through line 8.

Emergencies can arise, however, when the necessary equipment is all available except for a the special fire fighting pump with the pony inlet. It would not be unusual for appropriately sized "standard pumps" without a "pony inlet" to already be at the site. See spec p1 lines 9-25.

The instant invention teaches providing a fitting such that an appropriate "standard pump" could operate an around-the-pump system. In appropriate circumstances, this could save time, money and the environment. See spec p2 lines 17-25.

#### Concise Explanation of the Invention of the Independent Claims.

Independent claims 1, 9, 16 and 17 recite (in relatively analogous method and apparatus terms):

- (1) a large water reservoir R or W; (Fig 2, 3, 4)
- (2) pumping at least 2000 gpm (or a pump P therefor); (Fig 2-5)
- (3) a standard pump P (Fig 2-5) having a water manifold inlet F2, F4 but no special approximately 2.5 inch inlet (such as SF of prior art Fig 1, such as dictated by Regulations NFPA 1901), and
- (4) a "fitting" FS (or means having the structure of a fitting FS.) (Fig 2-5)

Claims 1, 9 and 16 further recite that the fitting is

- (5) "at least initially separate from the pump."

All claims recite such fitting

(6) "established on the suction side of the pump upstream of the pump water manifold inlet F2, F4." (Fig 2-5)

The fitting is in fluid communication between the reservoir and the pump suction side. (Fig 2-4)

To summarize key limitations for this appeal, all four independent claims recite (3) "a standard

pump having a water manifold inlet but no special approximately 2½ inch inlet,” as well as (1) a large water reservoir and (2) pumping at least 2000 gpm. All recite (4) a fitting (or means) (6) “established on the suction side of the pump, upstream of the pump water manifold inlet” for running an around-the-pump system. Claims 1, 9 and 16 further recite that (5) the fitting is at least initially separate from the pump. “Initially,” read in light of the specification, should connote “prior to the hazard.”

**These limitations will be referenced below in the Argument.**

There is one means plus function claim limitation. This is the last limitation of claim 16. Structure corresponding to the “means” of claim 16 is fitting FS, illustrated in Figures 2, 3, 4 and 5 and discussed on p5 line 22 to p6 line 23.

#### Person of Ordinary Skill in the Art

The person of ordinary skill in the art would be an industrial fire fighter with five or more years of experience. A typical industrial fire fighter has not completed any advanced engineering education nor has any experience in the manufacture of pumps.

#### **(vi) Grounds of Rejection to be Reviewed on Appeal**

I. Whether the use of the word “system” instead of the word “method” in the preamble of claims 1-8 and 17, (all of which claims have indented limitations in “gerund” form, e.g. “pumping,” “adding,” “attaching,”) renders the claims impermissibly indefinite under §112 and renders the claims impermissibly directed to non-statutory subject matter under §101; and/or whether the Amendment after Final substituting words in the preamble (in response to the Examiner’s first objection thereto) should have been entered.

II. Under §112, second paragraph, whether claims 5 and 13 are incomplete for “omitting essential structural cooperative relationships of elements, amounting to a gap between the necessary structural connections,” (MPEP 2172.01) by virtue of reciting “locating the fitting in a line leading from the reservoir outlet to the suction side of the pump” (claim 5) and “the fitting adapted to attach and align between the reservoir outlet and the suction side of the pump” (claim 13) instead of using language like that suggested by the Examiner in the last sentence of the first paragraph beginning of page 3 of the Action made final.

III. Whether all claims are obvious either over Hollan in view of Williams or alternately over Hollan in view of Worthington. (§103)

IV. Whether all claims are obvious over Gagliardo in view of Williams. (§103)

#### Important Sub-Issues

Two sub issues affect the rejection under grounds III and IV:

##### Sub Issue 1

whether the limitation “but no special approximately 2½ inch inlet” is a negative limitation that is not to be given patentable weight; and

**Sub Issue 2**

whether the Examiner’s assertion: “The size of the water manifold inlet would be chosen depending on the size of the pump designed,” is accurate and indicates a matter of mere design choice.

**(vii) Argument**

**I. First ground of rejection**

**Whether the use of the word “system” instead of the word “method” in the preamble of claims 1-8 and 17, (all of which claims have indented limitations in gerund form, e.g. “pumping,” “adding,” “attaching,”) renders the claims impermissibly indefinite under §112 and renders the claims impermissibly directed to non-statutory subject matter under §101; and/or whether the Amendment after Final substituting words in the preamble (in response to the Examiner’s first rejection thereof) should have been entered.**

Applicant submits that use of the term “system” in the preamble for a method claim does not render the claims impermissibly indefinite. As applicant pointed out in the Submission after Final (see attached under evidence,) one dictionary definition of “system” is “method, procedure.”

Furthermore, the claims have been in the same format (“system” in preamble with limitations all as gerunds) since filing. The Examiner first raises this objection in the Action made final. If the claims were indefinite, they were so from the beginning. And if the Examiner considered the new rejection to be a matter of substance instead of form, affecting the scope of the claims and possibly requiring further review, the Examiner should not have made the Action, in which this point is first raised, final.

Preferably, the amendment after final making the requested change should have been entered. Applicant submits that the amendment to change the word “system” to the word “method” did not alter the scope of the claims under the circumstances. The limitations in the above referenced claims were clearly indented and began with gerunds, such as “adding,” “attaching,” “pumping,” from the beginning. “System” can properly (by dictionary definition) refer to a method.

In Summary, use of the term “system” in the preamble for a method claim does not render claims 1-8 and 17 impermissibly indefinite, nor subject to a non-statutory subject matter rejection, although applicant is willing to substitute to comply with Patent Office preferences. As applicant pointed out in the submission, one dictionary definition of “system” is for a “method,” although the Patent Office might prefer that such usage not be followed. The amendment after final should have been entered.

**II. Second ground of rejection.**

**Under §112, second paragraph, whether claims 5 and 13 are incomplete for “omitting**

essential structural cooperative relationships of elements, amounting to a gap between the necessary structural connections,” (MPEP 2172.01) by virtue of reciting “locating the fitting in a line leading from the reservoir outlet to the suction side of the pump” (claim 5) and “the fitting adapted to attach and align between the reservoir outlet and the suction side of the pump” (claim 13) instead of the language suggested by the Examiner in the last sentence of the first paragraph beginning of page 3 of the Action made final.

The Examiner asserts that omitted essential structural cooperative relationships exist in claims 5 and 13 “between the location of the line leading from the reservoir outlet to the manifold inlet and the suction side of the pump.” Claims 5 and 13 “do not positively recite the connection (i.e. essential structural cooperative relationship) of the water manifold inlet with the line.” Applicant respectfully traverses.

Applicant submits that dependent claims 5 and 13 do not omit such essential structured cooperative relationships. Locating the fitting in a line leading from the reservoir outlet to the suction side of the pump does not appear to omit an essential structural cooperative relationship. There is no apparent gap between necessary structural connections to one of ordinary skill in the art. Analogously, adapting the fitting to attach in a line located between the reservoir outlet and the suction side of the pump appears complete. Such recitation appears to omit no essential structural cooperative relationship of elements. There is no gap apparent between necessary structural connections in the mind and understanding of one of ordinary skill in the art.

Four species are disclosed in Figures 2-5, showing three different locations of fitting FS in a line leading from the reservoir outlet to the suction side of the pump P. In figures 2, 3, 4 and 5, illustrating three different embodiments of the instant invention for using a standard pump P and a fitting FS in an around-the-pump system, the fitting FS is located in a line leading from the reservoir to the suction side of the pump. In Figure 2 fitting FS is directly connected to valve V which terminates pipe P that runs through dam D of reservoir R. (A plurality of lines H1, H2, H3 and H4 and a pair of manifolds F1 and F2 convey the water down stream of the fitting FS in Figure 2 to the standard pump P. Use of manifolds and a plurality of lines is a common practice of fire fighting.) The embodiment of Figure 3 shows the location of fitting FS at an input to manifold F4 at standard pump P. The embodiment of Figures 4 and 5 show the location of FS as being in the middle of a line leading from water W to the manifold on the inlet side of standard pump P. Claims 5 and 13 are generic to the embodiments of Figures 2, 3, 4 and 5.

Applicant requested to be shown where the Examiner found disclosed in the specification that “the line leads from the reservoir outlet to the fitting, then the line leads from the fitting to the manifold, and then the manifold is connected to the suction side of the pump” is “essential to the invention.” The Examiner responded that:

“Examiner has closely reviewed the specification and found that the Applicant apparently did feel that the relationship with the fitting, the line and the manifold were essential to the invention, since there were four different species disclosing showing four different specific essential relationships.”

The above has not helped applicant, and applicant simply submits that review of the specification and three different embodiments for locating the fitting between the reservoir and the pump appears to illustrate the opposite. Important to the claimed invention is “locating the (initially separate) fitting in a line leading from the reservoir outlet to the suction side of the pump” or “wherein the (initially separate) fitting is adapted to attach in a line located between the reservoir outlet and the suction side of the pump.” One way to accomplish the above is by locating fitting FS at the reservoir valve V, as per figure 2. A second way to locate the fitting is to locate the fitting in the middle of the line as per figure 3. A third way to locate the fitting is to locate the fitting attached to the pump water manifold inlet, as per figures 4 and 5.

First Sub-Issue relevant to both Grounds III and IV

**Whether the limitation “but no special approximately 2½ inch inlet” is a negative limitation that is not to be given patentable weight.**

Applicant respectfully submits that negative limitations properly receive patentable weight, and are not per se without weight. The Examiner disposes of the above recited limitation with a sweeping assertion, of lack of patentable weight without support. Applicant merely points out in response that a search of the phrase “negative limitation” in Westlaw’s Court of Appeals for the Federal Circuit cases reveals three recently litigated appeals (copies attached for easy reference in evidence appendix) with claims involving negative limitations. Patentable weight was not refused to the negative limitations. See Amgen, page 15 column 2; Upsher-Smith page 4; and SmithKline, page 29 (which positively extolls negative limitations.) The Examiner cited no case law in support of his position.

Second Sub-Issue relevant to both Grounds III and IV

**Whether the Examiner’s assertion: “The size of the water manifold inlet would be chosen depending on the size of the pump designed,” raises a mere design choice issue.**

Upon first receiving the above assertion applicant initiated the above referenced investigation to confirm that standard pumps of the requisite size, (2000 gpm and greater pumps,) as rented or owned and found on industrial sites, would not likely have a 2½ inch inlet. The findings are discussed above in the Background of the Summary section above in regard to the “Rain for Rent” website. Applicant submits, in fact, this is the reason why fire fighting Regulations 1901-45 do mandate the inclusion of a “pony inlet” into fire fighting pumps (discussed above.) One of ordinary skill in the pertinent art would not



expect a 2000 or greater gpm pump to have a 2½ inch inlet. Such is not a matter of mere design choice.

### Ground III

**Whether all claims are obvious over Hollan in view of Williams or alternately over Hollan in view of Worthington. (§103)**

Applicant traverses the Examiner's application of Hollan to all claims.

The Examiner agrees that Hollan does not disclose the size of the pump [limitation (2) above,] the reservoir water source [limitation (1) above] or "the fitting established on the suction side of the pump upstream of the pump water manifold inlet" [ limitation (6) above.]

Hollan also does not disclose, however: "a standard pump having a water manifold inlet but no special approximate 2½ inch inlet" [limitation (3) above;] or "a fitting at least initially separate from the standard pump " [limitations (4) and (5) above.]

Hollan teaches what the prior art teaches, a pump structured for fire fighting with a built-in special, small auxiliary (pony) inlet, downstream of the water manifold inlet, useful for running an around-the-pump system. See Figure 1 of the instant application illustrating prior art fire fighting pumps, pumps specially equipped with an approximately 2½ inch pony inlet. This pony inlet is designated as SF in prior art Figure 1 of the instant application. Hollan follows this prior art. Hollan discloses such prior art fire fighting pump apparatus, equipped with a chemical additive inlet illustrated in the Hollan figure as integrated into the pump and downstream of the water inlet manifold. Hollan does not teach or suggest a fitting, nor a fitting at least initially separate from a pump, nor a pump without a pony inlet, nor establishing that fitting upstream of the pump water manifold inlet.

Thus, in regard to Hollan applicant particularly contends the absence of the teaching of limitations (3)-(6) above. Of these four limitations the only ones that the Examiner addresses are limitations (3) and (6). For at least that reason alone the absence of addressing limitations (4) and (5), the Examiner's prima facie case fails and the rejection of any claims over Hollan in view of Williams or Worthington can not stand.

In regard to limitation (3), the Examiner's comments have been addressed above in sub issues 1 and 2. To recap, applicant asserts that there is no rule that a negative limitation is not to be given any patentable weight. Further, the size of inlets are not mere matters of design choice per se but relate to the size of the pump and operating deficiencies.

In regard to limitation (6) the Examiner asserts that it would have been obvious to provide Hollan's "fitting at 29" upstream of the water manifold inlet, and that Hollan's "fitting at 29" could be so located without affecting the operation of the Hollan apparatus. This assertion is not substantiated. Applicant respectfully traverses. First, Hollan teaches no specific "fitting" at 29. Second, there is no evidence

presented for any motivation to relocate Hollan's additive inlet. Engineering reasons can be cited, in fact, for not relocating the additive inlet, which is a permanent feature of Hollan's pump. E.g., pressure downstream of the water manifold inlet is somewhat more predictable and reliable, and the distance the additive must flow before reaching the pump chamber is less and turbulence is less, which can be a benefit with some additives. The Examiner points to no motivation for providing applicant's "fitting" upstream.

The motivation to provide the fitting upstream is the solution to applicant's problem, a solution not appreciated before. Hollan neither teaches or suggests any appreciation of applicant's problem, much less any solution thereto. The problem does not arise for Hollan.

For the above reasons all claims are allowable over Hollan with the combination of either secondary reference, without more.

#### Ground IV

##### **Whether all claims are obvious over Gagliardo in view of Williams. (§103)**

Applicant respectfully traverses the Examiner's rejection.

Gagliardo suffers from the same defects as Hollan. Applicant's argument above applies to Gagliardo, also. Gagliardo does not disclose "a standard pump having no special approximately 2½ inch inlet." [limitation (3) above] Gagliardo does not disclose a fitting at least initially separate from the standard pump. [limitations (4) and (5) above] Gagliardo does not disclose a fitting established on the suction side of the pump upstream of the pump water manifold inlet. [limitation (6) above] Clearly, also, Gagliardo teaches no water manifold inlet, no 2000 gpm pump and no water reservoir. [limitations (3), (2) and (1) above]

Gagliardo has further differences than even Hollan had. Gagliardo is directed to apparatus on fire fighting trucks, e.g. with roof turrets, hand lines, bumper turrets and ground sweeps. See Gagliardo figure 2. Gagliardo column 1 lines 49-53 uses the example of a crash truck at an airport as a paradigmatic situation in which Gagliardo's problem arises. Crash trucks at airports pump water from their own internal tanks. Even municipal fire trucks pump water either from their own internal tanks or from municipal fireplugs. At the time of Gagliardo, and at the date of filing the instant application, crash trucks at airports and municipal fire trucks had about a 1500 gpm maximum flow. Fire trucks are not anticipated to pump water from a large water reservoir.

In regard to the Examiner's assertions re Gagliardo, Gagliardo does not explicitly teach a "fitting" at the connection of line 10 and 13. Gagliardo's Figure 1 is "a schematic view" of a proportioning system to provide context for the inventive proportioner. The lines of Gagliardo's Figure 1 are "schematic." No "fitting" is explicitly taught by Gagliardo "at conjunction of line 10 at 13." Note that

13 is indicated in the drawing as a line but is recited in the text as “a source of primary fluid.” The proportioner itself, element 25, is the invention and the subject of Figures 2, 3 and 4. The illustrative drawing of Gagliardo does not comprise a sufficient “claim-anticipating disclosure” as discussed *in re Lukach* 442 F.2d 967, 169 USPQ 795 (CCPA 1971).

Gagliardo does not explicitly teach a standard pump having no special approximately 2½ inch inlet. Like Hollan and the prior art of figure 1, Gagliardo teaches a pump specially outfitted on a fire truck with a 2½ inch inlet for an around-the-pump additive system. Gagliardo does not explicitly teach a fitting at least initially separate from the standard pump. And clearly, Gagliardo’s pump has no water manifold inlet. Gagliardo’s Figure 1 is a schematic view of a proportioning system for apparatus to be used in fire fighting. Gagliardo does not teach or disclose a “fitting” at an intersection of the re-circulation branch and a water line or the suction side of the pump. In particular, not only does Gagliardo not show a fitting, Gagliardo does not show a pump having a water manifold inlet.

The Examiner’s position in regard to Gagliardo and limitations (1)-(6) is the same as with Hollan, but is subject to even more defects. Applicant contests the teaching of limitations (1) and (2) in Gagliardo as well as (3) – (6) limitations. Negative limitations receive patentable weight. The location of the inlet/fitting is not a mere matter of design choice. There is no motivation for modifying Gagliardo’s additive inlet. One of ordinary skill would not believe Gagliardo’s disclosed to a 2000 gpm pump and/or pumping from a water reservoir.

Secondary references cannot supply the deficiencies in Gagliardo. Secondary references cannot properly teach pumping from a fire truck at flow rates greater than fire trucks in general were designed to handle at the time the application was filed. Secondary references cannot properly be said to teach using a fire truck to pump from a large reservoir when fire trucks were not known to be designed to pump from large water reservoirs. Secondary references cannot be said to properly teach using a standard pump with fire trucks when one of ordinary skill in the art knows that fire trucks come with their own specially designed and incorporated pumps. One of ordinary skill in the art knows that fire trucks come from with built-in special approximately 2½ inch inlets for running an around-the-pump system. For that reason there is no need or motivation for a fitting initially separate from the pump on a fire truck. Most particularly, Gagliardo contains no teaching of a standard pump and an initially separate fitting. Neither does the secondary references.

For the above reasons Gagliardo does not teach or suggest several limitations of the independent claims, and the secondary references do not cover the deficiency. All rejected claims are allowable without more.

Respectfully Submitted,

10/11/6

Date

A handwritten signature in black ink, appearing to read "Sue Shaper", written over a horizontal line.

Sue Z. Shaper

Attorney/Agent for Applicant(s)

Reg. No. 31663

Sue Z. Shaper

1800 West Loop South, Suite 1450

Houston, Texas 77027

Tel. 713 550 5710

## **(viii) CLAIMS APPENDIX**

### **WHAT IS CLAIMED IS:**

1. A fire fighting system comprising:
  - pumping at least 2000 gpm water from a large water reservoir toward an industrial hazard using a standard pump having a water manifold inlet but no special approximately 2 ½ inch inlet; and
  - adding, in an around-the-pump system, at least one water additive from a water additive source to the pumped water through a fitting at least initially separate from the standard pump, the fitting established on a suction side of the pump upstream of the pump water manifold inlet and in fluid communication between a reservoir outlet and the suction side.
2. The system of claim 1 including adding the at least one water additive through the fitting located between the source of water additive and the suction side of the pump and adding the at least one water additive into a line located between the reservoir outlet and the suction side of the pump.
3. (Withdrawn) The system of claim 1 including locating the fitting at a reservoir outlet.
4. (Withdrawn) The system of claim 1 including locating the fitting at a suction side of the pump.
5. The system of claim 1 including locating the fitting in a line leading from the reservoir outlet to the suction side of the pump.
6. The system of claim 1 wherein the around-the-pump system includes porting, through a line established on a discharge side of the pump, at least a portion of water from the discharge side to the suction side of the pump.
7. The system of claim 6 wherein the porting includes porting through a jet pump in fluid communication with the source of water additive.
8. The system of claim 1 wherein the water additive includes foam concentrate.
9. A fire fighting system, comprising;
  - a large water reservoir;
  - an at least 2000 gpm standard pump having a water manifold inlet but no special approximately 2 ½ inch inlet;
  - a source of water additive; and
  - a fitting at least initially separate from the pump and attached between and adapted for fluid communication with
    - 1) a reservoir outlet and a suction side of the pump and

2) the water additive source and the suction side of the pump

wherein the fitting is established on a suction side of the pump upstream of the pump water manifold inlet.

10. (Withdrawn) The apparatus of claim 9 with the fitting structured to provide an inlet for a water additive line from the additive source.

11. (Withdrawn) The apparatus of claim 9 wherein the fitting is adapted to attach to a reservoir outlet.

12. (Withdrawn) The apparatus of claim 9 wherein the fitting is adapted to attach to a suction side of the pump.

13. The apparatus of claim 9 wherein the fitting is adapted to attach in a line located between the reservoir outlet and the suction side of the pump.

14. (Withdrawn) The apparatus of claim 9 wherein the fitting is adapted to attach to a jet pump outlet, the jet pump in fluid communication with a source of water additive.

15. The apparatus of claim 9 wherein the water additive includes foam concentrate.

16. A fire fighting system, comprising;

a large water reservoir;

an at least 2000 gpm standard pump having a water manifold inlet but no special approximately 2½ inch inlet;

a source of water additive; and

means separate from the pump for connecting an around-the-pump additive supply line with the suction side of the pump, the connecting means established on a suction side of the pump upstream of the pump water manifold inlet.

17. A fire fighting system, comprising;

attaching at least one line for fluid communication of water from a large reservoir to an at least 2000 gpm standard pump having a water manifold inlet but no special approximately 2½ inch inlet;

attaching at least one around-the-pump line for fluid communication of output from a discharge side of the pump to a suction side of the pump;

attaching at least one fitting providing for fluid communication through the around-the-pump line to the suction side of the pump wherein the fitting is established on the suction side of the pump upstream of the pump water manifold inlet.

**(ix) EVIDENCE APPENDIX**

**(x) RELATED PROCEEDINGS APPENDIX**

None



# Table of

Lexical and Electron	
Preface .....	
Noah Webster and	
Explanatory Diagram	
Explanatory Notes	
A Concise Guide to	
Style Guide .....	
Problems in English U	
Cliches .....	
Redundant Expression	
Students' Guide to	
Business Letter Style	
Forms of Address ..	
Abbreviations and La	
Pronunciation Symbo	
A New Dictionary of	
Abbreviations .....	
Biographical Names	
Geographic Names	
Foreign Words and Ph	
Table of Measuremen	
Signs and Symbols ..	

Words that are believed to be registered trademarks have been checked with authoritative sources. No investigation has been made of common-law trademark rights in any word because such investigation is impracticable. Words that are known to have current registrations are shown with an initial capital and are also identified as trademarks. The inclusion of any word in this Dictionary is not, however, an expression of the Publisher's opinion as to whether or not it is subject to proprietary rights. Indeed, no definition in this Dictionary is to be regarded as affecting the validity of any trademark.

Copyright © 1984, 1988 by Houghton Mifflin Company. All rights reserved.

No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system without the prior written permission of Houghton Mifflin Company unless such copying is expressly permitted by federal copyright law. Address inquiries to Permissions, Houghton Mifflin Company, 2 Park Street, Boston, MA 02108.

Library of Congress Cataloging in Publication Data  
Main entry under title:

Webster's II new Riverside university dictionary.

I. English language—Dictionaries. I. Riverside Publishing Company. II. Title: Webster's two new Riverside university dictionary. III. Title: Webster's 2 new Riverside university dictionary.

PE1625.W244 1984 423 83-3799

ISBN: 0-395-33957-X (thumb index, trade edition)  
0-395-37928-8 (high school edition)

Manufactured in the United States of America

The Riverside Publishing Company



p of organized crime figures working to gambling. 2. An agency that sells articles of newspapers or periodicals simulation, or jurisdiction of a syndicate or body.

**-ated, -cating, -cates.** —vt. 1. To sell (e.g., an article) through a syndicate. 2. To organize a syndicate. [Gk. *sundromē*, concurrence of symptoms, to run.] 1. A group of signs and symptoms. 2. a. A complex of stence of an undesirable condition or characteristic behavior pattern. —*syn-* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

**-tē** n. [Lat. < Gk. *sundokhē* < *sund-*, with + *ekdekhēsthai*, to understand, take.] A figure of speech by which a for a less inclusive term or vice versa, for a police officer. —*syn-ec-dochē* *adj.*

real disease caused by a spirochete, *Treponema pallidum*, transmitted by direct, usu. sexual contact and progressing through three stages respectively characterized by local formation of chancres, ulcerous skin eruptions, and systemic infection leading to general paresis. —*syph-ilitic* (*-līt'ik*) *adj.* & *n.*

**syphilo-** or **syphil-** *pref.* [*< SYPHILIS*] Syphilis [*< syphiloma*] **syph-ilitic** (*sif'ə-lō'id*) *adj.* Characteristic of syphilis.

**syph-ilo-lol-ogy** (*sif'ə-lō'l-ō-jē*) *n.* The sum of knowledge concerning the origin, nature, course, complications, and treatment of syphilis. —*syph-ilo-lol-og-ist* *n.*

**syph-ilo-ma** (*sif'ə-lō'mə*) *n.*, pl. **-mas** or **-mata** (*-mə-tə*). A lesion formed in an advanced stage of syphilis: GUMMA. —*syph-ilo-matous* (*-lōm'ə-təs*) *adj.*

**syphon** (*sif'ən*) *n.* & *v.* var. of **SIPHON**.

**Syrette** (*sī-rēt*). A trademark for a collapsible tube having an attached hypodermic needle containing a single dose of medicine.

**Syriac** (*sī-rē'āk*) *n.* An ancient Aramaic language spoken in Syria from the 3rd to the 13th cent. A.D. that survives as the liturgical language of several eastern Christian churches.

**Syrian** (*sī-rē'ən*) *adj.* Of or relating to Syria, its people, or its culture. —*n.* 1. A native or inhabitant of Syria. 2. A member of a Christian church using the Syriac language.

**sy-ring-a** (*sə-rīng'gə*) *n.* [NLAT: < Gk. *surinx*, shepherd's pipe (from the use of its hollow stems to make pipes).] **MOCK ORANGE** 1.

**sy-ringe** (*sə-rīn'*, *sī-rīn'*) *n.* [ME *syryng* < Med. Lat. *syrynga* < Gk. *surinx*, shepherd's pipe.] 1. A medical instrument for injecting fluids into the body or drawing them out of it. 2. A hypodermic syringe.

**sy-ringo-my-e-li-a** (*sə-rīng'gō-mī'ē-lē-ə*) *n.* [NLAT: < Gk. *surinx*, spinal cavity + Gk. *muelos*, marrow < *mus*, muscle, mouse.] A chronic disease of the spinal cord marked by the presence of liquid-filled cavities and leading to spasticity and sensory disturbances.

**sy-rinx** (*sī-rīngks*) *n.*, pl. **sy-ringes** (*sə-rīn'jēz*, *-rīng'gēz*) or **sy-rinx-ae** [Lat. < Gk. *surinx*.] 1. A panpipe. 2. Zool. The vocal organ of a bird, made up of thin vibrating muscles at or near the division of the trachea. —*sy-rin-gē-al* (*sə-rīn'jē-əl*) *adj.*

**sy-rhid** (*sūr'fīd*) *n.* [NLAT. *Syrphidae*, family name < Gk. *surphos*, gnat.] Any of numerous flies of the family Syrphidae, many of which have a form or coloration mimicking that of bees or wasps. —*adj.* Of or belonging to the Syrphidae.

**sy-rphus fly** (*sūr'fəs*) *n.* [NLAT. *Syrphus*, fly genus < Gk. *surphos*, gnat.] Syrphid.

**sy-rup** also **sī-rup** (*sī-r'əp*, *sūr'*) *n.* [ME *sirop* < OFr. < Med. Lat. *siropus* < Ar. *sharab* < *shariba*, he drank.] 1. A thick, sweet, sticky liquid, composed of a sugar base, natural or artificial flavorings, and water. 2. The juice of a fruit or plant boiled with sugar until thick and sticky. —*sy-rupy* *adj.*

**sys-sar-co-sis** (*sīs'ər-kō'sis*) *n.* [Gk. *sussarkosis*, a being overgrown with flesh < *sussarkoushai*, to be overgrown with flesh: *sun-*, with + *sarkoushai*, passive of *sarkoun*, to cover with flesh < *sarx*, flesh.] Union of bones, as the hyoid bone and lower jaw, by muscle.

**sys-tal-tic** (*sī-stōl'tīk*, *-stāl'*) *adj.* [LLat. *systematicus* < Gk. *systematikos* < *systemein*, to contract: *sun-*, together + *stallein*, to make compact.] Alternately contracting and expanding, as the heart: **PULSATING**.

**system** (*sīs'təm*) *n.* [LLat. *systema*, *systemat-* < Gk. *systema* < *sunistanai*, to combine: *sun-*, together + *histanai*, to make stand.] 1. A group of interrelated, interacting, or interdependent constituents forming a complex whole. 2. A functionally related group of elements, esp.: a. The human body regarded as a functional physiological unit. b. A group of physiologically complementary organs or parts < the nervous system >. c. A group of interacting mechanical or electrical components. d. A network of structures and channels, as for communications, travel, or distribution < a broadcasting system >. e. A rail system. 3. A structurally or anatomically related group of parts or elements. 4. A set of interrelated ideas or principles. 5. A social, economic, or political organizational form < the capitalist system >. 6. A naturally occurring group of objects or phenomena < the solar system >. 7. A set of objects or phenomena grouped together for classification or analysis. 8. Harmonious, orderly interaction. 9. A method: procedure. 10. Organized society: **ESTABLISHMENT** < You can't beat the system >.

**sys-tem-at-ic** (*sīs'tə-māt'īk*) also **sys-tem-at-ical** (*-ī-kəl*) *adj.* 1. Of, marked by, based on, or making up a system. 2. Carried on in a step-by-step procedure. 3. Purposefully regular: **METHODICAL**. 4. Of or relating to taxonomic classification. —*sys-tem-at-ic-ally* *adv.*

**sys-tem-at-ics** (*sīs'tə-māt'īks*) *n.* (*sing.* in number). Classification of organisms into an orderly system indicating natural relationships.

**sys-tem-a-tism** (*sīs'tə-mə-tīz'm*, *sī-stēm'ə*) *n.* 1. The practice of classifying or systematizing. 2. Adherence to a system.

**sys-tem-a-tist** (*sīs'tə-mə-tīst*, *sī-stēm'ə*) *n.* 1. One who formulates or adheres to a system. 2. A taxonomist.

**sys-tem-a-tize** (*sīs'tə-mə-tīz*) *vt.* **-tized**, **-tizing**, **-tiz-es**. To formulate into or reduce to a system < amass and systematize knowledge >. —*sys-tem-a-ti-za-tion* *n.* —*sys-tem-a-tiz'er* *n.*

**sys-tem-ic** (*sī-stēm'īk*) *adj.* 1. Of or relating to a system. 2. Of, relating to, or affecting the entire body. —*sys-tem-ic-ally* *adv.*

**sys-tem-ize** (*sīs'tə-mīz*) *vt.* **-ized**, **-izing**, **-iz-es**. To systematize. —*sys-tem-i-za-tion* *n.* —*sys-tem-iz'er* *n.*

TO: GUE E AFTER

# NFPA 1901

## Standard for Automotive Fire Apparatus

2003<sup>rd</sup> Edition



NFPA, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101  
An International Codes and Standards Organization

NFPA License Agreement

This document is copyrighted by the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101 USA.  
All rights reserved.

NFPA grants you a license as follows: The right to download an electronic file of this NFPA document for temporary storage on one computer for purposes of viewing and/or printing one copy of the NFPA document for individual use. Neither the electronic file nor the hard copy print may be reproduced in any way. In addition, the electronic file may not be distributed elsewhere over computer networks or otherwise. The hard copy print may only be used personally or distributed to other employees for their internal use within your organization.

1901-46

## AUTOMOTIVE FIRE APPARATUS

16.6.10 If the suction inlets are to be equipped with a valve, siamese, or adapter that will remain in place while the apparatus is in motion, that valve, siamese, or adapter shall not project beyond the apparatus running board.

16.6.11 The purchaser shall specify if any valve, siamese, or adapter is to be permanently installed on an intake and identify the brand and model of such item.

#### 16.7\* Pump Discharge Outlets.

16.7.1\* Discharge outlets of 2½ in. (65 mm) or larger shall be provided to discharge the rated capacity of the pump at the flow rates shown in Table 16.7.1.

Table 16.7.1 Discharge Rates by Outlet Size

Outlet Size		Flow Rates	
in.	mm	gpm	L/min
2½	65	250	1000
3	75	375	1400
3½	90	500	2000
4	100	625	2400
4½	110	750	3000
5	125	1000	4000
6	150	1440	5500

16.7.1.1 If the apparatus is equipped with an aerial device with a waterway that is permanently connected to the pump, the discharge from that waterway shall be permitted to be credited as a 1000 gpm (4000 L/min) outlet.

16.7.1.2 A minimum of two 2½ in. (65 mm) outlets shall be provided on any pump rated at 750 gpm (3000 L/min) or greater, and a minimum of one 2½ in. (65 mm) outlet shall be provided on any pump rated at less than 750 gpm (3000 L/min).

#### 16.7.2 Discharge Outlet Connections.

16.7.2.1 All 2½ in. (65 mm) or larger discharge outlets shall be equipped with male National Hose threads.

16.7.2.2\* Adapter couplings with special threads or other means for hose attachment shall be permitted to be furnished on any or all outlets.

16.7.3\* The piping and valves supplying any preconnected 1½ in. (38 mm), 1¾ in. (45 mm), or 2 in. (52 mm) hose line, including the piping to the preconnected hose storage areas specified in Section 5.6(2), Section 6.5(2), 7.5.2, 8.6.2, Section 9.6(2), or Section 11.7(2), as applicable, shall be at least 2 in. (52 mm) in size.

16.7.4 All discharge outlets, except outlets to which a hose will be preconnected, shall be equipped with caps or closures capable of withstanding a minimum hydrostatic burst gauge pressure of 100 psi (700 kPa) over the maximum pump close-off pressure or 500 psi (3400 kPa), whichever is greater.

16.7.4.1 Where adapters are provided on the discharge outlets, the closures shall fit on the adapters.

16.7.4.2 Caps or closures for outlets 3½ in. (90 mm) and smaller in size shall be removable from the outlet but remain secured to the apparatus.

16.7.5 Each discharge outlet shall be equipped with a valve that can be opened and closed smoothly at the flows shown in Table 16.7.1 at pump discharge gauge pressures of 250 psi (1700 kPa).

16.7.5.1 The flow-regulating element of each valve shall not change its position under any condition of operation that involves discharge pressures to the maximum pressure of the pump; the means to prevent a change in position shall be incorporated in the operating mechanism and shall be permitted to be manually or automatically controlled.

16.7.5.2\* Any 3 in. (75 mm) or larger discharge valve shall be a slow-operating valve.

16.7.6 All 1½ in. (38 mm) or larger discharge outlets shall be equipped with a drain or bleeder valve having a minimum ¼ in. (19 mm) pipe thread connection for draining or bleeding off pressure from a hose connected to the outlet.

16.7.7 Any 2 in. (52 mm) or larger discharge outlet that is located more than 42 in. (1070 mm) off the ground to which hose is to be connected and that is not in a hose storage area shall be supplied with a sweep elbow of at least 30 degrees downward.

#### 16.7.8 Valves.

16.7.8.1 Each pump discharge shall have a valve that can be controlled from the pump operator's position.

16.7.8.2 A secondary valve shall be permitted to be provided at a discharge outlet if required for special applications.

#### 16.7.9\* Location of Discharge Outlets.

16.7.9.1 No discharge outlet larger than 2½ in. (65 mm) shall be located at the pump operator's panel.

16.7.9.2 If the apparatus has a top console-type pump operator's panel, vertical discharge outlets larger than 2½ in. (65 mm) shall be permitted at the top midship position of apparatus where the outlets are used for directly connected deck guns or monitors and no fire hose is used for coupling the components.

16.7.10 Where the valve-operating mechanism does not indicate the position of the valve, an indicator shall be provided to show when the valve is closed.

#### 16.8 Pump Drains.

16.8.1 A readily accessible drain valve(s) that is marked with a label as to its function shall be provided to allow for draining of the pump and all water-carrying lines and accessories.

16.8.2 The drain valve(s) shall be operational without the operator having to get under the apparatus.

#### 16.9 Pump Operator's Panel.

16.9.1\* Each pump control, gauge, and other instrument necessary to operate the pump shall be located on a panel known as the pump operator's panel and shall be marked with a label as to its function.

16.9.2 All gauges, discharge outlets, pump intakes, and controls shall be illuminated to a minimum lighting level of 5 fc (50 lx).

#### 16.10\* Pump Controls.

16.10.1 General Provisions. Provisions shall be made for placing the pump drive system in operation using controls and switches that are identified and within convenient reach of the operator.

**16.5 Construction Requirements.**

16.5.1\* Wetted moving parts shall be constructed of a corrosion-resistant material.

**16.5.2 Hydrostatic Test.**

16.5.2.1 The pump body shall be subjected to a hydrostatic test to a gauge pressure of 500 psi (3400 kPa) minimum for 10 minutes.

16.5.2.2 The pump manufacturer shall provide a certificate of completion for the hydrostatic test.

16.5.3 Where an auxiliary pump is provided in combination with a fire pump and where the pumps are interconnected so that pressure from one pump can be transmitted to the other pump, check valves, intake or discharge relief valves, pump drive gear ratios, or other automatic means shall be provided to avoid pressurizing either pump beyond its maximum rated hydrostatic pressure.

16.5.4 The entire discharge and intake piping system, valves, drain cocks and lines, and intake and outlet closures, excluding the tank fill and tank-to-pump lines on the tank side of the valves in those lines, shall be capable of withstanding a minimum hydrostatic burst gauge pressure of 500 psi (3400 kPa).

**16.5.5 Pulsation-Free Fire Streams.**

16.5.5.1 The pump shall be capable of producing fire streams that are free from pulsations.

16.5.5.2 When an accumulator is used to provide pulsation-free fire streams, the accumulator shall be constructed and tested in accordance with the ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 2.

16.5.6 The pump shall allow a positive pressure water source to directly add to the pump's net pump pressure.

**16.6 Pump Intake Connections.**

16.6.1\* The pump shall have at least the number of intake(s) required to match one of the arrangements shown in Table 16.2.4.1(a) for the rated capacity of the pump, and the required intakes shall be at least equal in size to the size of the suction lines for that arrangement.

16.6.1.1 The intakes specified in 16.6.1 shall have male National Hose threads if the apparatus is to be used in the United States.

16.6.1.2 If the couplings on the suction hose carried on the apparatus are of a different size than the pump intake(s) or have means of hose attachment other than that provided on the intake(s), an adapter(s) shall be provided to allow connection of the suction hose to the pump intake(s).

16.6.1.3\* A sign shall be provided on the pump operator's panel that states the following:

**WARNING:** Death or serious injury might occur if proper operating procedures are not followed. The pump operator as well as individuals connecting supply or discharge hoses to the apparatus must be familiar with water hydraulics hazards and component limitations.

**16.6.2 Intake Strainer.**

16.6.2.1 Each intake shall have a removable or accessible strainer inside the connection.

16.6.2.2\* The strainer(s) shall restrict spherical debris that is too large to pass through the pump.

16.6.3 At least one valved intake shall be provided that can be controlled from the pump operator's position.

16.6.3.1 The valve and piping shall be a minimum 2½ in. (65 mm) nominal size.

16.6.3.2 If the intake is 2½ in. (65 mm) nominal size, the intake shall be equipped with a female swivel coupling with National Hose threads.

16.6.4 Any 3 in. (75 mm) or larger intake valve except the tank-to-pump intake valve shall be a slow-operating valve.

16.6.5\* Each valved intake shall be equipped with a bleeder valve having a minimum ¾ in. (19 mm) pipe thread connection to bleed off air or water.

16.6.5.1 The bleeder valve shall be operational without the operator having to get under the apparatus.

16.6.5.2 If a valved appliance is attached to an intake, it shall be equipped with a ¾ in. (19 mm) bleeder valve on each intake.

16.6.6 Each valved intake having a connection size of 3½ in. (90 mm) or larger shall be equipped with an adjustable automatic pressure relief device installed on the supply side of the valve to bleed off pressure from a hose connected to the valved intake.

16.6.6.1 The pressure relief device shall discharge to atmosphere, and the discharge shall be piped or directed away from the pump operator's position.

16.6.6.2 The automatic pressure relief device shall be adjustable from a minimum of 90 psi (620 kPa) to at least 185 psi (1275 kPa).

16.6.6.3 The pressure relief device, when preset at 125 psi (860 kPa), shall not allow a pressure rise greater than 60 psi (400 kPa) at the device inlet while flowing a minimum of 150 gpm (570 L/min).

16.6.7 If the pump is equipped with one or more intakes larger than 3½ in. (89 mm) that are not valved, an adjustable automatic pressure relief device shall be installed on the pump system to bleed off excess pressure from a hose connected to the pump intake.

16.6.7.1 The automatic pressure relief device shall be adjustable from a minimum of 90 psi (620 kPa) to at least 185 psi (1275 kPa).

16.6.7.2 The pressure relief device, when preset at 125 psi (860 kPa), shall not allow a pressure rise greater than 60 psi (400 kPa) at the device inlet while flowing a minimum of 150 gpm (570 L/min).

16.6.7.3 The pressure relief device shall discharge to atmosphere.

16.6.8 All intakes shall be provided with caps or closures capable of withstanding a hydrostatic burst gauge pressure of 500 psi (3400 kPa).

16.6.8.1 Intakes having male threads shall be equipped with caps; intakes having female threads shall be equipped with plugs.

16.6.8.2 Where adapters for special threads or other means for hose attachment are provided on the intakes, closures shall be provided for the adapters in lieu of caps or plugs.

16.6.9 Caps or closures for 3½ in. (90 mm) and smaller intakes shall be removable from the intakes but remain secured to the apparatus.



"Daniel" Said most of the pumps had a  
pump (2 1/2" ) inlet  
8/8/06 5:25



Questions, contact us at  
info@rainforrent.com  
or call 1-800-742-7246

Home

Products

Success Stories

Contact Us

Company Info.

- Advanced Search
- Solution Successes
- Solutions Expert
- Product Line
- Company History
- Locations
- Careers with us
- Sale Items
- Contact Us
- Provide Feedback
- Quality, Safety, Excellence

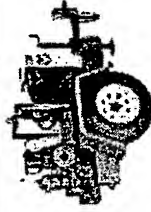
## Rain for Rent Pump Fleet

For More Information on Pumps,  
See Pump Training and check out  
our Pump Testing Facility

All Rain for Rent pumps have an end suction centrifugal pump with a fully automatic priming system incorporated into the design. This enables the pump to self-prime from completely dry conditions, even with extended suction lines. Liquid is not required to prime the pump, and therefore, in temporary dry conditions, the pump will 'snore' until such time as liquid is available

## Power Prime Pumps

Interested in Renting one of these Pumps?



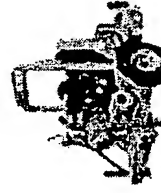
**DV-80**  
Size is 3" x 3"  
500 GPM maximum  
138 FT Head maximum



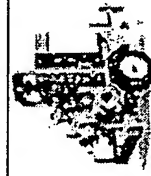
**DV-80M**  
Size 3" X 3"  
600 GPM Max  
95 Ft Head Max



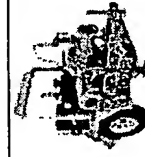
**DV-100**  
Size is 4" x 4"  
800 GPM maximum  
115 FT Head maximum



**DV-150**  
Size is 6" x 6"  
2250 GPM maximum  
160 FT Head maximum



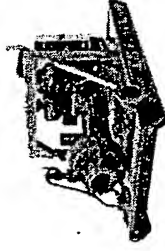
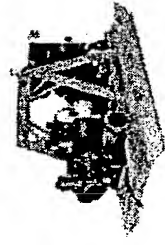
**DV-200**  
Size is 8" x 8"  
3100 GPM maximum  
152 FT Head maximum



**DV-200C**  
SIZE 8"x8"  
4,500 GPM MAX  
255 FT HEAD MAX  
81% Hydraulic Efficiency

**DV-300**  
Size is 12" x 10"  
5000 GPM maximum  
100 FT Head maximum

**DV-300i**  
Size 12" x 12"  
6,900 GPM max  
197 ft head max

**DV-350**

Size 14" X 14"  
8,000 GPM Max  
100 Ft Head Max

**DV-350c**

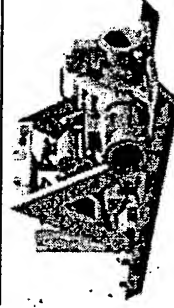
Size 14" x 14"  
13,500 GPM MAX  
180 FT. HEAD MAX

**DV-400**

Size 18" X 16"  
16,000 GPM Max  
200 Ft. Head Max

**VMX-150**

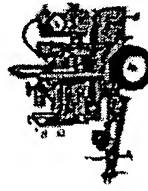
Size 6" X 6"  
2,300 GPM Max  
160 Ft Head Max

**VP-150**

Size is 8" x 6"  
2250 GPM  
maximum  
110 FT Head  
maximum

**VP-500**

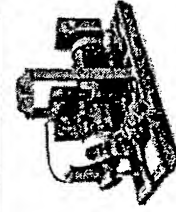
Size is 24" x 20  
22000 GPM maximum  
123 FT Head maximum



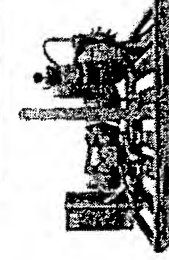
## Electric & Recessed Pumps

**DV-100 Electric**

Size is 4" x 4"  
680 GPM maximum  
72 FT Head maximum

**DV-150 Electric**

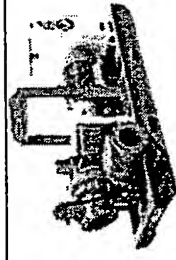
Size is 6" x 6"  
2000 GPM maximum  
100 FT Head maximum

**DV-200 Electric**

Size 8" X 8"  
2750 GPM Max  
128 Ft Head Max

**DV-300 Electric**

Size is 12" x 10"  
5000 GPM maximum  
115 FT Head maximum

**DV-100 Recessed****DV-150 Recessed**



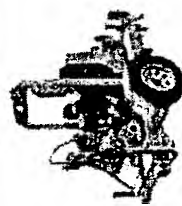
Size Is 4" x 4"  
800 GPM maximum  
70 FT Head maximum



Size Is 6" x 6"  
2600 GPM maximum  
75 FT Head maximum



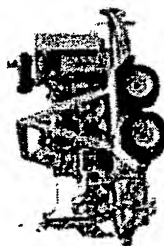
## High Head Pumps



HH-80 3 x 3  
Size Is 3" x 3"  
450 GPM maximum  
300 FT Head maximum



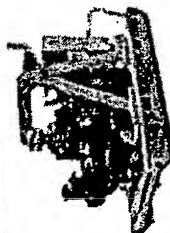
HH-125 6 x 4  
Size Is 6" x 4"  
800 GPM maximum  
370 FT Head maximum



HH-150 8 x 6  
Size Is 8" x 6"  
2250 GPM maximum  
320 FT Head maximum



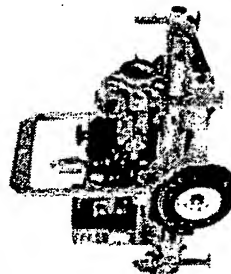
HH-200i  
Size 8" X 8"  
4,500 GPM Max  
450 Ft Head Max



XH-100 6 x 4  
Size 6" X 4"  
1,250 GPM Max  
605 Ft Head Max



XH-150 8 x 6  
Size 8" X 6"  
2,400 GPM Max  
605 Ft Head Max



Cornell RB  
Series - Medium  
Head  
Flows Up To 4,400  
GPM  
Up To 370 Ft Head



Cornell H Series  
- High Head  
Flows Up To 1,600  
GPM  
Up To 475 Ft Head

## Sound Attenuated Pumps

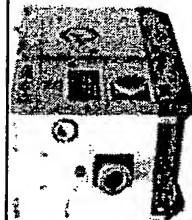
SA-DV-100  
SIZE 4" x 4"  
800 GPM MAX  
115 FT. HEAD MAX

SA-DV-150  
Size 6" X 6"  
2,250 GPM Max  
160 Ft. Head Max

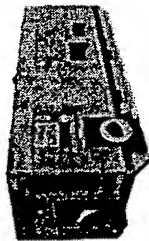
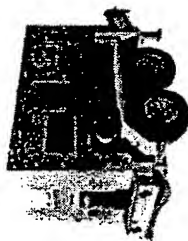




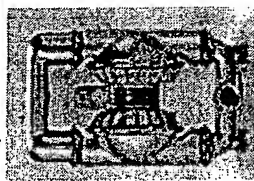
**SA-DV-200**  
Size 8" X 8"  
3,100 GPM Max  
152 Ft. Head Max



**SA-DV-300**  
Size 12" X 10"  
5,000GPM Max  
115 Ft. Head Max



## Submersibles, Air Compressed, and Others



**Air Diaphragm**  
Primarily 2" and 3" units



**Flygt Submersible Pumps**  
Size 3" X 12"  
Flows Up To 5,000 GPM  
Up To 310 Ft Head

**Hydra Tech**

**Hydraulic**

**Submersible Pumps**

Size 4" X 6"  
Flows Up To 1,600 GPM  
Up To 110 Ft Head



**HD-150 6 Hydraulic**

**Submersible**

Size is 6"  
2000 GPM maximum  
108 FT Head maximum

Westlaw

--- F.3d ---

Page 1

--- F.3d ---, 2006 WL 2167206 (C.A.Fed.)  
(Cite as: --- F.3d ---)

**H**

Only the Westlaw citation is currently available.

United States Court of Appeals, Federal Circuit.  
AMGEN INC., Plaintiff-Appellee,

v.

HOECHST MARION ROUSSEL, INC. (now  
known as Aventis Pharmaceuticals Inc.) and  
Transkaryotic Therapies, Inc.,  
Defendants-Appellants.

No. 05-1157.

Aug. 3, 2006.

Appealed from: United States District Court for the  
District of Massachusetts. Judge William G. Young.

Lloyd R. Day, Jr., Day Casebeer Madrid & Batchelder LLP, of Cupertino, California, argued for plaintiff-appellee. With him on the brief were Edward M. O'Toole, Howrey LLP, of Chicago, Illinois; Michael F. Borun, Marshall, Gerstein & Borun LLP, of Chicago, Illinois; and Stuart L. Watt, Amgen Inc., of Thousand Oaks, California. Of counsel were Renee M. DuBord Brown, Robert M. Galvin, Jonathan Loeb, David M. Madrid, Linda A. Sasaki-Baxley, Krista M. Carter, Courtney Towle, and Patricia L. Peden, Day Casebeer Madrid & Batchelder LLP, of Cupertino, California; Kevin M. Flowers, Marshall, Gerstein & Borun LLP, of Chicago Illinois; Robert R. Cook, Monique L. Cordray, Steven M. Odre, and Wendy A. Whiteford, Amgen Inc., of Thousand Oaks, California; and Michael R. Gottfried and D. Dennis Allegretti, Duane Morris, LLP, of Boston, Massachusetts.

Carter G. Phillips, Sidley Austin Brown & Wood LLP, of Washington, DC, argued for defendants-appellants. With him on the brief was Joseph R. Guerra.

Before MICHEL, Chief Judge, CLEVINGER, Senior Circuit Judge, and SCHALL, Circuit Judge.

Opinion for the court filed by Circuit Judge SCHALL.

Dissenting-in-part opinion filed by Chief Judge MICHEL.SCHALL, Circuit Judge.

\*1 This is a **patent** case. Amgen, Inc. ("Amgen") is the owner of U.S. **Patent** Nos. 5,547,933 ("the '933 **patent**"), 5,618,698 ("the '698 **patent**"), 5,621,080 ("the '080 **patent**"), 5,756,349 ("the '349 **patent**"), and 5,955,422 ("the '422 **patent**"). The **patents** are directed to recombinant deoxyribonucleic acid ("DNA") technology relating to the production of the hormone erythropoietin ("EPO"). All five **patents** share a common specification and descend from Application No. 06/561,024 ("the '024 application"), filed on December 13, 1983.

In April of 1997, Amgen brought a declaratory judgment action against Hoechst Marion Roussel, Inc. (now known as Aventis Pharmaceuticals Inc.) ("HMR") and Transkaryotic Therapies, Inc. ("TKT") (collectively, "HMR/TKT") in the United States District Court for the District of Massachusetts, alleging that HMR/TKT's Investigational New Drug Application ("INDA") for an EPO product infringed the five **patents**. In January of 2001, following a *Markman* hearing, summary judgment proceedings, and a bench trial, the district court issued an opinion in which it: (i) construed the disputed claims; (ii) held the **patents** not unenforceable; (iii) held the asserted claims of the '080, '349, and '422 **patents** not invalid and infringed with the exception of claim 7 of the '349 **patent**, which it found not infringed; (iv) held the asserted claims of the '698 **patent** not infringed; and (v) held the asserted claims of the '933 **patent** not infringed or, in the alternative, invalid for failure to satisfy 35 U.S.C. § 112. *Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 126 F.Supp.2d 69, 165-66 (D.Mass.2001) ("*Amgen I*").

In *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313 (Fed.Cir.2003) ("*Amgen II*"), we affirmed *in toto* the district court's claim construction. We also affirmed (i) the court's

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

--- F.3d ----

Page 15

--- F.3d ----, 2006 WL 2167206 (C.A.Fed.)  
(Cite as: --- F.3d ----)

whether or not the EPO had 165 or 166 amino acids. *Id.* at 157. In essence, the court construed the claims based on the extrinsic record (with support from the intrinsic record). *Id.* The court reasoned that this evidence reflected a "shortcoming[ ] of language" or "linguistic" limitation, which were mentioned in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1372 (Fed.Cir.2003) (en banc) ("*Festo III*"), as possible reasons for rebuttal of the *Festo* presumption. *Amgen III Doctrine of Equivalents Judgment*, 287 F.Supp.2d at 159. The court then found that those equivalents encompassed by this construction were not surrendered, relying on the "some other reason" exception to the *Festo* presumption of surrender of equivalents. *Id.*

HMR/TKT argues on appeal that the district court erred in finding that Amgen's third preliminary amendment was merely tangential to the equivalent EPO having a 165-amino acid sequence. It contends that if the **patentee** had intended solely to limit the scope of claims 2-4 of the '080 **patent** to *human* EPO, the **patentee** would have used the word "human" to describe the EPO. Instead, according to HMR/TKT, the third preliminary amendment uses the word "mature," while both of the previous amendments used the word "human" to describe the EPO claimed. HMR/TKT urges that the district court also erred by finding that Amgen rebutted the *Festo* presumption based on "some other reason." HMR/TKT argues that Amgen amended the claims of the '080 **patent** to include only a 166-amino acid EPO out of fear of a new matter rejection, which does not fall under *Festo*'s "some other reason" criterion.

Amgen counters that the district court was correct in its conclusion because the purpose of the third preliminary amendment was to distinguish the '080 **patent**, which encompasses only *human* EPO, from claim 1 of the '933 **patent**, which encompasses both human and animal EPO. In support of its argument, Amgen recites its remarks during prosecution "that claims 69, 70, and 71 [currently claims 2-4 of the '080 **patent**] all differ in scope from glycoprotein claim 1 of U.S. 5,547,933 in specifying that the claimed subject matter comprises the mature human erythropoietin sequence of Figure 6. Claim 69

[currently claim 1 of the '080 **patent**] (like '[933] glycoprotein claim 1) recites carbohydrate differences in comparison to human urinary [EPO] and claim 70 [currently claim 2 of the '080 **patent**] recites a negative limitation with respect to isolation from human urine." (footnote omitted). Based on the foregoing statement in the **patentee's** remarks accompanying the third preliminary amendment, Amgen contends that the amendment was meant to distinguish Amgen's EPO from naturally-occurring EPO through differences in glycosylation, or "carbohydrate differences." Thus, Amgen argues that the mention of the EPO sequence of Figure 6 was merely tangential. Further, Amgen defends the district court's conclusion that Amgen successfully rebutted the *Festo* presumption under the "some other reason" rationale. Amgen argues that because a person of ordinary skill in the art would have understood the claims to encompass a 165-amino acid equivalent, the *Festo* presumption was rebutted. Finally, Amgen argues that the district court erred in finding that a 165-amino acid equivalent was foreseeable because the **patentee** expected the claims to encompass this equivalent.

### C.

\*17 The burden of rebutting the *Festo* presumption lies with the **patentee**. *Festo III*, 344 F.3d at 1368. Whether a **patent**-holder has successfully rebutted the *Festo* presumption of the surrender of equivalents is a question of law, which we review de novo. *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1376 (Fed.Cir.2005); *see also Festo III*, 344 F.3d at 1368; *Biagro W. Sales, Inc. v. Grow More, Inc.*, 423 F.3d 1296, 1302 (Fed.Cir.2005); *Glaxo Wellcome, Inc. v. Impax Labs., Inc.*, 356 F.3d 1348, 1351 (Fed.Cir.2004). For the reasons which follow, we uphold the district court's finding that Amgen failed to show that EPO with a 165-amino acid sequence was not foreseeable at the time of the amendment. However, we hold that the district court erred when it held that Amgen had met its burden of rebutting the *Festo* presumption under both the tangentiality and "some other reason" rationales.

The presumption that equivalents are surrendered

 [West Reporter Image \(PDF\)](#)

412 F.3d 1319, 75 U.S.P.Q.2d 1213

United States Court of Appeals,  
Federal Circuit.  
UPSHER-SMITH LABORATORIES, INC., Plaintiff-Appellant,  
v.  
PAMLAB, L.L.C. (formerly Pan American Laboratories, Inc.) and Pan American  
Laboratories, L.L.C., Defendants-Appellees,  
and  
Metabolite Laboratories, Inc., Defendant.  
No. 04-1405.  
June 17, 2005.

**Background:** Assignee of patents for vitamin supplement compositions sued competitor for infringement. The United States District Court for the District of Minnesota, Ann D. Montgomery, J., 2003 WL 22999551 and 2004 WL 902176, found both patents invalid, and assignee appealed.

**Holding:** The Court of Appeals, Rader, Circuit Judge, held that patents were invalid as anticipated.

Affirmed.

#### West Headnotes

#### [1] [KeyCite Notes](#)



##### [291 Patents](#)

##### [291XII Infringement](#)

##### [291XII\(C\) Suits in Equity](#)

##### [291k314 Hearing](#)

##### [291k314\(5\) k. Questions of Law or Fact. Most Cited Cases](#)

Patent anticipation is question of fact. 35 U.S.C.A. § 102.

#### [2] [KeyCite Notes](#)



##### [170B Federal Courts](#)

##### [170BVIII Courts of Appeals](#)

##### [170BVIII\(K\) Scope, Standards, and Extent](#)

##### [170BVIII\(K\)1 In General](#)

##### [170Bk763 Extent of Review Dependent on Nature of Decision Appealed from](#)

##### [170Bk766 k. Summary Judgment. Most Cited Cases](#)

Grant of summary judgment is reviewed without deference.

#### [3] [KeyCite Notes](#)



##### [291 Patents](#)

##### [291II Patentability](#)

##### [291II\(D\) Anticipation](#)

##### [291k63 Prior Patents](#)

##### [291k66 Operation and Effect](#)

vitamin B<sub>6</sub>. However, the prior art that teaches compositions consisting of vitamin B<sub>12</sub>, folate, and vitamin B<sub>6</sub> also teaches adding other vitamins and antioxidants to provide additional health benefits. Dr. Victor Herbert, the named inventor of the '624 and '646 patents, discovered that including antioxidants in such compositions destroys some of the vitamin B<sub>12</sub> and folate. Dr. Herbert obtained the '624 and '646 patents based on that discovery. Dr. Herbert distinguished the prior art by claiming compositions that expressly exclude antioxidants. Indeed, Upsher-Smith admits that the only difference between the asserted claims and the prior art is the claims' **negative limitation** excluding antioxidants.

In addition to teaching vitamin supplement compositions comprising vitamin B<sub>12</sub>, folate and vitamin B<sub>6</sub>, the prior art recognized that several substances known to be antioxidants were also known to destroy vitamin B<sub>12</sub> and folate. Specifically, an article published more than forty years before the filing dates of the '624 and '646 patents recognized that vitamins C and E, both of which were known antioxidants, are "incompatible" with vitamin B<sub>12</sub>. Thomas J. Macek & Beate A. Feller, *Crystalline Vitamin B<sub>12</sub> in Pharmaceutical Preparations*, 41 Journal of the Am. Pharm. Assoc., No. 6, at 285 (1952). Dr. Hebert also published an article more than twenty years before the filing the date of the '624 and '646 patents teaching that vitamin C destroys vitamin B<sub>12</sub>. Victor Herbert, MD, JD, & Elizabeth Jacob, MD, *Destruction of Vitamin B<sub>12</sub> by Asorbic Acid*, 230 Journal of the Am. Med. Assoc., No. 2, at 241 (Oct. 14, 1974). Thus, the prior art teaches that certain substances known as antioxidants destroy vitamin B<sub>12</sub>. The prior art does not teach, however, that the antioxidizing properties of those substances are responsible for this destruction. As described above, Dr. Herbert discovered that relationship.

Against this background, the district court decided PamLab's motions for summary \*1322 judgment of invalidity for anticipation and obviousness. The district court found the asserted claims of the '624 and '646 patents anticipated by European Patent Application No. 933114762.3 (filed Sept. 14, 1993) (European Application). [FN2] '624 Order at 11-12; '646 Order at 4- 5. The European Application discloses the same compositions claimed in the ' 624 and '646 patents with the difference that the European Application "optionally includes" antioxidants. The district court found that because the European Application teaches compositions both with and without the antioxidants, it anticipates the asserted claims of the '624 and '646 patents. '624 Order at 11; '646 Order at 4-5. Upsher-Smith appeals. This court has jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(1).


[FN2]. Because this court affirms the district court's anticipation findings in light of the European Application, this opinion will not address the district court's additional anticipation and obviousness

findings.

## II

[1] [2] Anticipation is a question of fact. *Elan Pharm., Inc. v. Mayo Found. for Med. Educ. & Research*, 346 F.3d 1051, 1054 (Fed.Cir.2003). However, this court reviews grants of summary judgment without deference. *Knoll Pharm. Co. v. Teva Pharms. USA, Inc.*, 367 F.3d 1381, 1384 (Fed.Cir.2004). "Summary judgment is therefore appropriate when there is no genuine issue of material fact or when, drawing all factual inferences in favor of the nonmoving party, no 'reasonable jury could return a verdict for the nonmoving party.' " *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1320 (Fed.Cir.2003) (quoting *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986)).

[3] Upsher-Smith concedes that the European Application contains every element of the asserted

 [West Reporter Image \(PDF\)](#)

403 F.3d 1331, 74 U.S.P.Q.2d 1398

### **Briefs and Other Related Documents**

United States Court of Appeals,  
Federal Circuit.  
SMITHKLINE BEECHAM CORPORATION and Beecham Group, P.L.C., Plaintiffs-  
Appellants,  
v.  
APOTEX CORP., Apotex, Inc., and TorPharm, Inc., Defendants-Cross Appellants.  
Nos. 03-1285, 03-1313.  
DECIDED: April 8, 2005.  
Rehearing En Banc Denied June 15, 2005.

**Background:** Pharmaceutical drug manufacturer brought action against generic drug manufacturer alleging infringement of patent for active ingredient in antidepressant drug. The United States District Court for the Northern District of Illinois, Richard A. Posner, Circuit Judge, sitting by designation, granted judgment for generic manufacturer, 247 F.Supp.2d 1011. Plaintiff appealed.

**Holdings:** Vacating its prior opinion, 365 F.3d 1306, upon rehearing en banc, the Court of Appeals, Rader, Circuit Judge, held that:

- (1) patent claim encompassed, without limitation, paroxetine hydrochloride (PHC) hemihydrate;
- (2) patent was not invalid for indefiniteness; and
- (3) patent was invalid as inherently anticipated.

Affirmed on other grounds.

Gajarsa, Circuit Judge, filed concurring opinion.

### West Headnotes

[1] [KeyCite Notes](#) 

◀ [170B Federal Courts](#)

◀ [170BVIII Courts of Appeals](#)

◀ [170BVIII\(K\) Scope, Standards, and Extent](#)

◀ [170BVIII\(K\)5 Questions of Fact, Verdicts and Findings](#)

◀ [170Bk848 k. Findings of Court in General. Most Cited Cases](#)

◀ [170B Federal Courts](#) [KeyCite Notes](#) 

◀ [170BVIII Courts of Appeals](#)

◀ [170BVIII\(K\) Scope, Standards, and Extent](#)

◀ [170BVIII\(K\)5 Questions of Fact, Verdicts and Findings](#)

◀ [170Bk850 Clearly Erroneous Findings of Court or Jury in General](#)

◀ [170Bk850.1 k. In General. Most Cited Cases](#)

Court of Appeals reviews a district court's judgment following a bench trial for errors of law or clearly erroneous findings of fact.

[2] [KeyCite Notes](#) 

converting paroxetine anhydrate to paroxetine hemihydrate" or "crystalline paroxetine hydrochloride hemihydrate *arising through natural conversion*," unpatentability under section 101 would be manifest; though the claimed matter would be a useful composition, it would be one that occurred in nature. See Chakrabarty, 447 U.S. at 309, 100 S.Ct. 2204; Funk Bros., 333 U.S. at 130, 68 S.Ct. 440. By claiming simply "crystalline paroxetine hydrochloride hemihydrate" with no reference to how it was produced, SKB effectively claimed "crystalline paroxetine hydrochloride hemihydrate *whether non-naturally occurring or arising through natural conversion*." Claim 1, as issued, therefore combines patentable and unpatentable subject matter, and is invalid under section 101. The "confusion" to which the majority alludes should never arise because we cannot reach Section 102 unless the claimed matter can overcome the hurdle of section 101.

Inventors wishing to claim products that can either be synthesized in laboratories or generated by natural processes may protect themselves by incorporating **negative limitation** terms like "non-natural" or "non-human" into the claims that they submit for examination. See Amgen Inc. v. Hoechst Marion Roussel, 314 F.3d 1313, 1329 (Fed.Cir.2003); Animal Legal Def. Fund, 932 F.2d at 923; In re Wakefield, \*1364 422 F.2d at 904. SKB made no such distinction. SKB, despite an early recognition of seeding and conversion, SK II, 247 F.Supp.2d at 1022, claimed all paroxetine hemihydrate crystals, including both those "born" of natural conversion without human intervention and those "made" in a laboratory through explicit human effort. SKB further demonstrated its claim to a possessory right in naturally occurring crystals by pursuing this litigation, and articulated this claim explicitly during oral argument.

The asserted breadth of Claim 1 makes sense only under the erroneous belief that patents may protect products spread and reproduced by natural processes, directly contradicting our well established understanding of the limits imposed by section 101. Given current scientific trends, such a belief could easily lead to misdirected research investments, to inappropriately issued patents, and to a widespread in terrorem effect crippling entire industries whose artisans learn that even their best efforts to respect patent rights may not save them from liability as inadvertent, inevitable infringers. As the district court recognized, the notice function of patents is meaningless in such an environment, SK II, 247 F.Supp.2d at 1028. The lack of suitable notice could easily chill innovation, inquiry, experimentation, and commercial development. The patent law does not sanction the concept of inevitable infringement.


Because SKB's assertion of the single crystal theory provides the correct construction of Claim 1, the '723 patent claims paroxetine hemihydrate crystals reproduced by nature unaided by man--unpatentable subject matter--and is therefore invalid under 35 U.S.C. § 101.

C.A.Fed.,2005.

SmithKline Beecham Corp. v. Apotex Corp.

403 F.3d 1331, 74 U.S.P.Q.2d 1398

### **Briefs and Other Related Documents [\(Back to top\)](#)**

- [2004 WL 1635552](#) (Appellate Brief) Brief of Washington Legal Foundation as Amicus Curiae in Support of Plaintiffs-Appellants' Petition for Rehearing En Banc (Jun. 15, 2004)
- [2003 WL 23858872](#) (Appellate Brief) Corrected Brief for Defendants-Cross Appellants (Jul. 23, 2003)[Original Image of this Document \(PDF\)](#) 
- [2003 WL 24587751](#) (Appellate Brief) Corrected Brief for Defendants-Cross Appellants (Jul. 23, 2003)
- [03-1313](#) (Docket) (Mar. 31, 2003)
- [03-1285](#) (Docket) (Mar. 11, 2003)

END OF DOCUMENT

 [West Reporter Image \(PDF\)](#)

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☒ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**